

# **Environmental Audit for Businesses**

This audit is designed to provide “Green Teams” and businesses involved in the ESAP (Environmental Stewardship Action Program) with ideas and action plans for making their businesses better Environmental Stewards.

## **Executive Summary**

### **First**

Form a “Green Team” and designate a team leader.

Develop goals and a plan to monitor progress.

Schedule meetings periodically to discuss action plans, assign responsibilities and evaluate the environmental impact of program.

There are several categories that the “Green Team” can work on to help your business become an Environmental Steward. They include:

### **Water**

The treatment of community drinking water supplies costs millions of dollars each year and has some serious environmental impacts. Less than one percent of all water treated by communities is actually used for drinking purposes. The average person in the United States uses about 80 gallons of water each day for indoor use, of which 30 gallons are used to flush the toilet, 15 gallons for hand washing and brushing teeth, 15 gallons for bathing or showering, 12 gallons for washing clothes, and 8 gallons for preparing food and washing dishes. This does not include outside uses of water such as washing cars or watering lawns, nor does it include industrial or agricultural uses of water. If all uses of water are considered, the America per-capita need is more than 1,600 gallons every day. The raising of meat and dairy products consumes 75% of all the water used in the United States each year. If every person in this country flushed the toilet just one time less every day, the resultant water savings could form a lake, which would be one square mile in size and with a depth of four feet. There are many small steps that a business can take to decrease water consumption.

### **Wastewater**

If you have a separate water meter that your water utility uses to calculate your water bill, your use of water will also determine what your wastewater charges will be. You will also save money on your wastewater bills when you reduce the amount of water used.

### **Energy**

The use of energy and fuels in any form has major environmental consequences. American manufacturers consume 50% more energy than their counterparts in Japan and Germany. This helps them to better compete in the world marketplace. Citizens of Sweden have a higher standard of living on average than Americans; yet use 50% less energy in doing so. Replacing just one 75-watt incandescent bulb with a 20-watt compact fluorescent saves 75% of the electrical energy and the bulb lasts 10 times longer before burning out. If 1,000 ESAP members replaced just one 75-watt incandescent bulb with a 20-watt compact fluorescent, 715,000 pounds

of carbon dioxide and 4,000 pounds of other air pollution would not be emitted, 275,000 pounds of coal would not be burned to produce the electricity that would have been needed, and \$35,000 would be saved on electrical bills.

### **Purchasing Policies**

ESAP members can have a tremendous impact on the environment through the wise purchasing of materials, supplies, and services. The post consumer recycled content of paper has increased during the last few years. The new federal paper procurement guidelines require 20% post consumer content, and most paper companies now offer photocopy and office paper which have at least 20%. The last remnants of old growth forests are being cut in the United States for lumber and paper, including such low quality uses as telephone directories. American taxpayers pay nearly 400 million dollars a year to subsidize the logging of our ancient forests, and less than 10% remain. In the tropics, rainforests are being cut at a rate of 35 million acres a year. By recycling paper and purchasing recycled paper, we can help reduce this destruction. Purchasing paper that has not been bleached and does not need bleach to be recycled reduces the consumption of chlorine to bleach the fibers. Chlorine contains dioxin, a dangerous and persistent chemical.

### **Reduce and Reuse**

By reducing waste and reusing items, the environmental impacts of raw material extraction, manufacturing, transportation, and disposal of items will be greatly lessened. By not buying items with a short useful life expectancy such as paper or Styrofoam cups, paper plates, and plastic serving ware, you will have less to throw away. As much as possible items should be cleaned and reused rather than being thrown in the garbage. Besides avoiding pollution and saving natural resources, you will also save money on disposal costs and new purchases. A policy to print double-sided copies cuts paper use in half.

### **Recycling**

Recycling is a waste management option, which saves natural resources and energy, and in some cases money. The garbage thrown away every year by 100,000 Americans contains more paper than 1,000 acres of trees, more copper than a medium sized copper mine, and more aluminum than a small aluminum ore mine. These materials should be reclaimed rather than thrown away.

### **Drycell Batteries**

Batteries are often used to power portable tools and appliances. Batteries contain a variety of material such as cadmium and mercury that can pose a problem to the environment. The level of mercury in the more common drycell batteries has fallen to near zero in recent years as the threat of regulatory pressure encouraged battery companies to find replacements for the use of mercury. With the disappearance of mercury, however, the opportunities for recycling carbon or alkaline batteries have also decreased. Rechargeable batteries are generally of the alkaline or nickel-cadmium variety. Nickel-cadmium batteries, however, are a greater threat to the environment. Recycling opportunities exist for nickel-cadmium batteries because of the greater metals content, but can be expensive. Identifying and replacing battery powered appliances or tools with solar power (like calculators), or hard-wired (items with a power cord to be plugged into the building's electrical system) are good alternatives.

Other items to consider include:

**Work Environment.** A pleasant, safe and healthy work environment is crucial for wellness of employees, to maximize productivity, and to warmly welcome clients. In the quest for energy efficiency, well-insulated buildings may actually compound any air quality difficulties as fresh air exchange is reduced. For assistance and information in controlling indoor air flow, indoor air quality, and air-to-air exchanger, contact a local ventilation contractor.

**MSDS** (Material Safety Data Sheets) must be posted and readily accessible by all staff.

**Environmental Resource Center.** The design and content of a Resource Center is an opportunity for staff to use their creativity and can represent environmental issues of local as well as national interest. The information posted at the “Eco Center” should be changed frequently to maintain client and staff interest and involvement. Placing an Eco Center in a prominent location can be a reflection of the excellence of your commitment to Environmental Stewardship.

## **Action Plan**

### **Water**

1. Inspect all of the cold and hot water pipes. Have all leaks been found and stopped?
2. Place food coloring in the tanks of all toilets and let sit for a few hours. If there are any unseen leaks, the colored water will be seen in the toilet bowl
3. Look for leaks at each faucet. (A small leak in a faucet or toilet can waste 15 gallons or more of water each day. That’s more than 5,500 gallons in a year’s time!
4. Install flow restrictors, which can decrease water usage.
5. Devices such as spring-loaded faucets, which turn themselves off after a set period of time can also be used to reduce water use rates at each faucet.
6. If toilets are more than a few years old, they may use up to 7 or 8 gallons per flush. New water conserving toilets may use as little as 1.5 gallons per flush.
7. Record your water usage rates from your water meter and divide by a factor such as the number of employees, customers in a certain time period or the number of square feet in your business to see how much water use translates to perceptible business functions. Develop a plan to watch your water use rates to see how your water conservation efforts are paying off as water is being saved. This will benefit the environment and save you money.

### **Wastewater**

1. Floor drains are generally not connected to municipal wastewater treatment facilities. Disposing of materials down floor drains, or allowing spills to enter floor drains, can contaminate waterways and soil. If your facility has floor drains, is there a plan to prevent material from being disposed of in the drains, and are there provisions to react to spilled materials to keep them out of floor drains?
2. Disposing of materials and waste other than normal biological wastes down the toilet or down sink drains can cause problems or pollution. As examples, grease can clog sewer lines; solvents and paints can disrupt treatment processes and pollute

waterways. Is there a plan to keep unusual materials and waste out of the toilets and drains?

## **Energy**

1. Replace appropriate incandescent light with standard or compact fluorescent lights.
2. Inspect your water heaters and all hot water piping. Have all hot water pipes been insulated, and has an extra blanket of insulation been installed around all water heaters? (Payback periods for the insulation can be relatively short.)
3. Water heaters are frequently turned higher than needed. Setting the control as low as possible can result in significant energy and monetary saving.
4. Investigate the possibility of converting your water heater to a more efficient tankless system. The French-built Aquastar is a highly efficient tankless water heater. Water is heated almost instantaneously when there is a demand. Some units are large enough for commercial operations. (In the typical home, heating water accounts for up to 40% of the total amount of energy used. By converting to a tankless system, there is an immediate savings of at least 20% of the energy normally used. Commercial establishments will see a similar savings. The United States relies on tank-type water heaters more than any other country. In the summer, we often have to provide air conditioning to remove the heat emanating from our water heater tank.
5. Weatherize the building you are in. Weatherization measures save money year round, and in all climates. Caulk or seal all exterior cracks and holes with a good quality sealant. Be sure that windows are double paned. Add extra insulation in the wall, and especially in the attic or on the roof.
6. Install programmable automatic thermostats.
7. Encourage employees to seek alternative means of transportation for getting back and forth to work. Develop a plan to encourage and reward employees who carpool, take public transportation, walk, or ride a bike to work. (More than 50% of the petroleum Americans use comes from sources overseas. Private passenger vehicles account for the largest demand category for petroleum in this country, using 20% of the supply.)
8. An energy audit can reveal many ways to reduce consumption. Electrical and gas companies often provide these audits as well as some private companies.
9. Purchase company cars that are fuel-efficient. (Passenger vehicles contribute 20% of the carbon dioxide pollution, which adds to the greenhouse effect; 27% of hydrocarbons that are responsible for the formation of smog; and 35% of nitrous oxides that can form acid precipitation.)
10. Appliances consume differing amounts of energy to operate at identical levels of performance. Formulate a plan to determine energy efficiencies of existing appliances and make sure when they are replaced it is with energy conserving models.
11. Office equipment like computer, printer, fax machines, photocopiers, and monitors also use a varying amount of energy depending upon the brand or model. Establish a guideline for purchasing additional or replacement equipment.

## **Drycell Batteries**

1. Replace items powered by batteries with alternative power (i.e. Solar).
2. Implement a battery-recycling program.

## **Reduce and Reuse**

1. Implement a policy to collect, clean and reuse items.
2. Set up a plan to monitor and compare the amount of solid waste that is disposed of over set periods of time.
3. Create signs to encourage double-sided copies for all the copiers.
4. Route information, use email, share magazines and newspapers.
5. Evaluate packaging procedures. Replace non-reusable and non-recyclable packaging.
6. Be creative.

## **Recycling**

1. Make sure your business is set up to recycle as much as possible. Educate the users to make sure they clearly understand the program and that it is convenient.
2. Use Recycling Education Kit.

## **Purchasing Policies**

1. The term “post consumer recycled” means materials purchased by consumers through commerce that have been collected by recycling programs and then made into new products. Develop a purchasing policy that includes buying products with post consumer recycled content.
2. Evaluate the use of tree-free paper. There is no shortage of non-wood fiber material in the United States. U.S. farmers annually generate an estimated 280 million tons of excess agricultural fiber suitable for papermaking. Generally these fibers are known to be pulped with higher fiber yields than wood and require fewer chemicals to be processed, less water and less energy.
  - a. Purchase products that are recyclable (i.e. do not buy fluorescent or darkly colored paper that is not accepted in your recycling program.).
3. Gather information about the use of chlorine and send the information to the purchasing department to encourage them to use chlorine free products.

## **Resource List**

### **Water and Wastewater**

American Water Works Association WaterWise program	800-559-9855
California Department of Water Resources	916-653-1097
Freshwater Institute	612-471-8407
National Sanitation Foundation	800-NSF-8010
Clean Water Action	202-457-1286
Water Pollution Control Federation	703-684-2400
Your local wastewater treatment facility or agency	

### **Energy**

US Environmental Protection Agency's	
Energy Star Office Equipment Program	202-233-9114
Rocky Mountain Institute	303-927-3851
Alliance to Save Energy	202-857-0666
American Council for an Energy-Efficient Economy	202-233-9114
Your local utility companies.	

**Fluorescent Lighting**

Scientific Component Systems 714-730-3555

Terra Resources 612-882-9341

There are many sources for fluorescent bulbs. Contact your local lighting outlets.

**On Demand Heaters**

Real Goods 800-762-7325

EemaX Company 203-261-0684

Your local heating companies.

**Recycling Mercury Thermostats**

Honeywell Corporation 800-345-6770

X733

**List that compares the energy efficiencies of furnaces, air conditioners, boilers, refrigerators, and freezers**

Wisconsin Energy Bureau 608-266-8234

**Batteries**

Inmetco 412-758-8516

Mercury Refining 800-833-3505

Resource Holdings 503-226-7331

**Other**

Rainforests Action Network 415-398-4404

Rainforest Alliance 212-941-1900

Save the Redwoods League 415-362-2352

Save America's Forests 202-667-5150

Seventh Generation 802-655-6777

Real Goods 800-233-5335

Organic Trade Association 413-774-7511

Pesticide Action Network 415-541-9140

Arbour Recycled Products 613-567-3168

Found Stuff Paperworks 619-338-9432

Living Tree Paper Company 503-342-2974

(Local paper suppliers have additional sources of tree-free or recycled paper.)